A Patient-Led Approach to Disclosure of Alzheimer's Disease and Dementia with Lewy Bodies Co-Pathology

Leadership in Action Project Report

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Introduction

Santa Creu and Sant Pau Hospital Barcelona

My Leadership in Action project focussed on launching development of a protocol that discloses co-occurring Alzheimer's Disease (AD) and Dementia with Lewy Bodies (DLB) in a way that centres the best possible outcome for patients at Santa Creu and Sant Pau Hospital Barcelona and their families, with a view to publication and wider adoption within Spain.

Spain carries a high neurodegeneration burden, with nearly 1 in 4 adults over 65 showing signs of dementia [1]. The impact of this extends to the patient, but also their families and loved ones in the form of grief, financial stress, and caregiving duties. The disclosure of AD-DLB co-pathology is particularly important due to its frequency—Alzheimer's Disease and Dementia with Lewy Bodies are the 1st and 3rd most common causes of dementia respectively, with co-pathology occurring in around 60% of patients [2, 3]. Therefore, improving the way this co-pathology is disclosed has the potential to lead to improvement of the experience of many patients and their loved ones.

Alzheimer's Disease and Dementia with Lewy Bodies Co-Pathology

Currently, the majority of people who show signs of neurodegeneration have what we would currently classify as more than one disease in post-mortem analysis [2,3]. In the case of Alzheimer's Disease (AD) and Dementia with Lewy Bodies (DLB), we now have testable biomarkers for both diseases in the cerebrospinal fluid (tau protein level for AD, presence or absence of alpha-synuclein for DLB). This means that some patients test positive for both AD and DLB pathology, suggesting they have co-occurring AD and DLB.

Most people understandably perceive an AD-DLB diagnosis as having two separate diseases. Whilst this is correct from a classification standpoint, it is important to note that disease classifications reflect patterns seen in entire populations of people, not the experience of an individual. The lines between different dementia-causing diseases are quite blurry, and most patients with dementia have multiple disease pathologies in their brain. The different pathologies often contribute to the same symptoms, suggesting that AD-DLB co-pathology and other neurodegenerative co-pathologies could be more accurately described as multiple pathologies contributing to a single disease, rather than as multiple diseases [2, 3].

AD-DLB co-pathology is linked to faster cognitive decline and higher morbidity than 'pure' AD or 'pure' DLB, and the impact of this perceived double diagnosis can be higher on patients, their caregivers, and their loved ones [4]. Dual positivity can increase the number of medical visits and treatments a patient undergoes, increasing burden on themselves and their caregivers. Some clinical trials do not accept patients with dual positivity, potentially affecting their treatment options. Additionally, Spanish workplace law dictates that these results are disclosed to a patient's employer if they are above retirement age, which can lead to financial concerns and concerns about workplace discrimination.

It is important to note that cerebrospinal fluid biomarker testing provides a snapshot of the disease state at the time when the lumbar puncture is performed. If a patient tests negative for either AD or DLB, their disease pathology could expand over time, and the patient could test positive at a later point. Whilst rare, patients who have previously been disclosed negative results and are now being given positive results must also be considered as such disclosure can be particularly confusing and distressing.

Patient and Public Involvement

Instead of writing a protocol and then showing it to patients and their families for feedback, we are using patient and public involvement (PPI) so that the people this disclosure might impact can shape how results are disclosed from the very beginning of the project. PPI methodology is shown to improve protocol quality, leading to better mental health outcomes for patients and caregivers and higher reported patient quality of life [5].

Working alongside the charity Lewy Body España, we are setting up a forum of discussion for the project that will include patients, caregivers, families, clinicians, and allied health workers. Patient and caregiver perspective will be centred, but clinician and healthcare worker perspective is vital to ensure the protocol can be realistically implemented in a hospital environment. Importantly, this forum aims to include perspectives from all over Spain, including families from smaller cities than Barcelona or Madrid. This diversity of perspective will aid the protocol in being able to be more widely adopted.

Disclosure

What is the Process of Disclosure?

The process of result disclosure can differ depending on the kind of result being shared. In the case of cerebrospinal fluid biomarker disclosure, the standard process is as follows [3, 6]:

Pre-disclosure education

Pre-disclosure education is designed to give the patient a full understanding of the test being performed and the potential impact of the possible outcomes. This includes:

a. Information about biomarkers

b. Frequency of AD-DLB co-pathology

c. Potential benefits of learning the results
    a. Helping plan for the future
    b. Knowledge of the impact of co-pathology on treatment options

d. Potential disadvantages of learning the results
    a. Impact on mental health
    b. Workplace discrimination concerns

Much of this is included in the informed consent for a lumbar puncture (the process by which cerebrospinal fluid is extracted). We have begun to design a more AD-DLB specific pre-disclosure leaflet to explain neurodegenerative disease classification, co-pathology, and biomarkers together.

Disclosure

This is a clinician-patient conversation where the results of the biomarker testing are shared. Post-disclosure information is also given in this conversation, and the post-disclosure materials can also be used to assist in the conversation.

Post-disclosure education

Post-disclosure education is designed to reiterate some of the pre-disclosure education, but also give more result-specific information on the impacts of the result and the resources available to the patient and their loved ones. This includes:

a. Description of what their result means in the context of their illness.

b. Description of how their result may affect the patient, their family and others around them

c. Instructions on how to seek additional information or support
    a. Including mental health support and public financial services

This is included in a leaflet provided at disclosure. It is important to note that the leaflet is not designed to be comprehensive, but emphasise important points and assist in the clinician-patient conversation. This is to avoid overwhelming patients with information that they may not need.

Counselling/ support

The provision of this can differ widely based on the hospital and area. In the context of the Santa Creu and Sant Pau Hospital, this is generally in the form of visits from the specialist Memory Unit mental health nurse. Where a patient or family needs support, the nurse can explain the options available at the Santa Creu and Sant Pau Hospital and discuss with them what might be most suitable for them.

Assessment of anxiety and depression

Measuring anxiety and depression before and after result disclosure could help determine the impact of result disclosure on mental health. This would be done with the well-standardised General Anxiety Disorder (GAD-7) and Patient Health Questionnaire 9 (PHQ-9). However, it would be difficult to attribute any change solely to the disclosure as there is no available baseline comparison. The impact of the

mental health assessment itself is also unknown and going through another 'medical procedure' could negatively impact the patient. For these reasons, this assessment is only a potential addition to the disclosure process.

How is Disclosure Currently Implemented?

Currently, this is done differently from clinician to clinician. Our interviews with clinicians will help us to understand the differences in the way they disclose this information. Whilst patient-tailored care is important, clinicians are not disclosure experts. A well-designed standard protocol ensures key information is covered without reducing the ability of the clinician to tailor their disclosure to the specific needs of the patient.

The priority of this project is to improve the material available to clinicians and patients throughout the disclosure process, assisting them without reducing their agency in the conversation. Patient and public involvement has not been used in developing current disclosure, largely because funding for it is limited and the AD-DLB biomarker testing is still relatively new.

How Could PPI Improve Disclosure?

It is well known through PPI that patient and caregiver perspective far improves clinical protocols [6].

We aim to begin to understand this perspective through the concept of a 'patient journey'. This is where we ask the patient to draw out their idea of the timeline of their medical treatment, including diagnoses, appointments, medications, and anything else they find important. To understand family and caregiver perspective, we will extend this concept to the main family caregiver, who often attends appointments with the patient. The 'caregiver journey' will follow the same main idea but could also include developments in caregiver burden and other caregiver-specific circumstances.

Comparing these to the clinical perspective of ant individual's treatment will provide insight into points where the communication between the clinician and the patient/ their family most needs to be improved. As a clinical team, our knowledge is biased to the clinical perspective—these journeys aim to find the gaps in that perspective.

Mainly, we want to know:

a. Does the patient/ caregiver know what disease(s) the patient has been diagnosed with?

b. Does the patient/ caregiver understand why the patient has been diagnosed with these disease(s)?

c. Does the patient/ caregiver remember if these diagnoses have changed over time?

d. If the patient's diagnoses have changed over time, does the patient/ caregiver understand why?

e. When does the patient/ caregiver see the symptoms of the disease(s) as having begun?

f. When does the patient/caregiver perceive the patient's symptoms as having impacted the day-to-day life of the patient?

g. What impacts does the patient/ caregiver perceive the patient's symptoms to have on the day-to-day life of the patient?

h. When does the patient/ caregiver perceive the patient's symptoms as having impacted the day-to-day life of people other than the patient?

i. What impacts does the patient/ caregiver perceive the patient's symptoms to have on the day-to-day life of people other than the patient?

j. When did the patient/ caregiver first think medical intervention was necessary?

k. When does the patient/ caregiver remember first seeking medical help for the patient?

l. Which medical appointments and tests do the patient/ caregiver remember the patient having?

m. What was the impact on the life of the patient/ caregiver (and others around them) of the medical appointments and tests the patient underwent?

This list is non-exhaustive and, as not written by patients and caregivers, will represent clinical priorities despite effort to avoid this. Through PPI, it will be shaped further toward the perspective of patients and their caregivers.

To further understanding and input from patients and their families, more general interviews will take place consulting them on what they would like from materials, and what they feel is currently missing from the clinical experience. Most importantly, we want to be aware of patient's and caregiver's understanding of:

a. AD-DLB co-pathology

b. Impact of co-pathology on treatment

c. Impact of results on likely care needs.

Outputs and Future Directions

Partnership with Lewy Body España

Lewy Body España is a Spanish charity that supports patients that have been diagnosed with Dementia with Lewy Bodies and their families. They aim to educate healthcare professionals and caregivers on how to support those affected with DLB, focussing on areas with limited knowledge of DLB and neurodegenerative disease such as local health centres, regional hospitals, centres for the elderly, and emergency services. Through them, we are beginning to build a PPI board, where we will meet with patients and their families from across Spain to gain their perspective.

There is no Spanish charity for neurodegenerative co-pathology, but ideally we will also partner with an Alzheimer's disease focussed charity in order to avoid a DLB bias to our work.

Patient Leaflets

These are designed to bring together all the key information relevant to AD-DLB cerebrospinal fluid biomarker disclosure into one place, and act as a starting point for our PPI meetings. As aforementioned, they are meant to act as an accessible guide for clinical discussion and answer some common questions of patients and caregivers. For this reason, the possibility of a biomarker result changing over time from negative to positive is not included, as this is very rare and a point of the discussion that should be entirely led by the clinician.

Please see the supplementary material for pre- and post-disclosure education leaflets in both English and Spanish, made specifically for the Santa Creu and Sant Pau Hospital Barcelona. The English-Spanish translation was performed by me, and will be validated before clinical use. A Catalan version is also required, They will also likely change to a large extent as they are shaped by patients and their caregivers through their PPI meetings.

These leaflets are designed to be as accessible as possible in their formatting, with large spacing and type, as well as dyslexia friendly font and colour-blindness friendly colours.

Patient Videos

We are going to consult with our PPI board on whether video versions of the leaflets and other information would be useful. This could expand the accessibility of the information to those with impaired sight or low literacy levels.

Videos could also show some aspects of medical procedures that patients might be consenting to, such as lumbar puncture to extract cerebrospinal fluid. These could make a patient more comfortable with the concept.

Clinical Protocol

In addition to materials designed to help the patient, we also aim to design materials to guide the clinician. This could be a reminder of things such as:

a. What do patients and their families often feel is missing from what the clinician tells them?

b. What do patients and their families tend to struggle the most to understand?

c. What is covered by the pre- and post-disclosure material provided?

d. What from the pre- and post-disclosure material should be stressed again by the clinician?

e. What is not covered in the pre- and post-disclosure material that should be shared at the clinician's discretion depending on the needs of the patient?

Conclusion

My Laidlaw Leadership in Action Project successfully launched a patient-led approach to disclosure of Alzheimer's Disease and Dementia with Lewy Bodies biomarkers through collaboration with Lewy Body España and development of patient information materials.

I will continue to work on this project, and it will develop further over time, including production of a clinical protocol. This seeks to improve the experience of patients at the Memory Unit of the Santa Creu and Sant Pau Hospital, as well as their families and loved ones.

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Biomarker disclosure after lumbar puncture

Memory Unit
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Pre-disclosure education

What is a biomarker?

A biomarker is any measurable sign of a disease or process in the body.

Whilst biomarkers give good hints, they are not perfect. Sometimes a biomarker can be seen as positive when the patient does not actually have the tested disease and vice versa. Because of this, your clinical team will combine your biomarker information with your symptoms when thinking about your diagnosis.

What does this test do, and what could it mean?

We can now check for biomarkers of both Alzheimer's disease and Dementia with Lewy Bodies using the cerebrospinal fluid we collect during a lumbar puncture.

This test is designed to see if you have Alzheimer's disease, Dementia with Lewy Bodies, or both. The result for Dementia with Lewy Bodies is either yes or no, but the result for Alzheimer's disease is on a scale. The biomarker levels don't necessarily show how progressed your disease is, and there is a small chance your results could be inconclusive.

The idea of having two diseases can be daunting, but it is important to note that disease classifications are our best working estimate for entire populations of people. Every individual is unique, and the brains of people who have neurodegenerative symptoms usually have signs of what we would currently classify as more than one disease.

What are the benefits and downsides of learning my biomarker results?

The results could help you and your loved ones (and potentially your workplace) to know what to expect and to know if any adjustments could be made to make your life easier.

It can be stressful to learn potentially worrying information. Clinical support is available through hospital appointments, and your clinical team can also direct you to extra support to suit your needs.

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Educación previa a la divulgación

¿Qué es un biomarcador?

Un biomarcador es cualquier signo medible de una enfermedad o proceso en el cuerpo.

Aunque los biomarcadores dan buenas pistas, no son perfectos. A veces un biomarcador puede ser visto como positivo cuando el paciente no tiene realmente la enfermedad probada y viceversa. Debido a esto, su equipo clínico combinará la información de su biomarcador con sus síntomas al pensar en su diagnóstico.

¿Qué hace esta prueba y qué podría significar?

Ahora podemos comprobar si hay biomarcadores tanto de la enfermedad de Alzheimer como de la demencia con cuerpos de Lewy utilizando el líquido cefalorraquídeo que recolectamos durante una punción lumbar.

Esta prueba está diseñada para ver si usted tiene la enfermedad de Alzheimer, demencia con cuerpos de Lewy, o ambos.

El resultado para la demencia con cuerpos de Lewy es sí o no, pero el resultado para la enfermedad de Alzheimer es a escala. Los niveles de biomarcadores no necesariamente muestran qué tan progresiva está su enfermedad, y hay una pequeña probabilidad de que sus resultados no sean concluyentes.

La idea de tener dos enfermedades puede ser desalentadora, pero es importante tener en cuenta que las clasificaciones de enfermedades son nuestra mejor estimación de trabajo para poblaciones enteras de personas. Cada individuo es único, y los cerebros de las personas que tienen síntomas neurodegenerativos generalmente tienen signos de lo que actualmente clasificaríamos como más de una enfermedad.

¿Cuáles son los beneficios y desventajas de aprender mis resultados de biomarcadores?

Los resultados podrían ayudarle a usted y a sus seres queridos (y potencialmente a su lugar de trabajo) a saber qué esperar y a saber si se pueden hacer ajustes para hacer su vida más fácil.

Puede ser estresante aprender información potencialmente preocupante. El apoyo clínico está disponible a través de citas en el hospital, y su equipo clínico también puede dirigirlo a apoyo adicional para satisfacer sus necesidades.

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Post-disclosure education

What does it mean to be positive for Alzheimer's disease and/ or Dementia with Lewy Bodies? If both, does this mean I have two diseases?

Disease classifications are our best working estimate for entire populations of people. Every individual is unique, and when we look at the brains of people who had signs of neurodegeneration, most people have signs of what we would currently classify as more than one disease.

People with signs of both Alzheimer's disease and Dementia with Lewy Bodies generally show faster rates of disease progression than those who show signs of one, but this is difficult to predict and does not apply to every individual.

What does it mean to be negative for Alzheimer's disease and Dementia with Lewy Bodies?

This means that your symptoms are unlikely to be caused by Alzheimer's disease or Dementia with Lewy Bodies. There are other possible explanations which your clinician will discuss with you.

How might this result impact me, my loved ones, and others in my life?

As your disease progresses, it may become more difficult to work and socialise. This can be difficult, but we will use our resources to help you and your loved ones get the support you need.

Depending on your result, your clinician might ask to have appointments more often than every year to track the progress of your symptoms.

In some cases, you may be able to access extra support from social workers, the Memory Unit nurse, or other departments of the hospital. This could lead to support such as house visits, financial support, or civic centre involvement.

How might this impact my involvement in clinical trials?

If you have signs of two diseases, some clinical trials may not involve you. This depends on the clinical trial, and you can discuss this with your clinician.

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Educación posterior a la divulgación

¿Qué significa ser positivo para la enfermedad de Alzheimer y/ o demencia con cuerpos de Lewy? Si ambos, ¿significa esto que tengo dos enfermedades?

Las clasificaciones de la enfermedad de son nuestra mejor estimación de trabajo para poblaciones enteras de personas. Cada individuo es único, y cuando observamos los cerebros de las personas que tenían signos de neurodegeneración, la mayoría de las personas tienen signos de lo que actualmente clasificaríamos como más de una enfermedad.

Las personas con signos de enfermedad de Alzheimer y demencia con cuerpos de Lewy generalmente muestran tasas más rápidas de progresión de la enfermedad que las que muestran signos de una, pero esto difícil de predecir y no se aplica a todas las personas.

¿Qué significa ser negativo para la enfermedad de Alzheimer y la demencia con cuerpos de Lewy?

Esto significa que es poco probable que síntomas sean causados por la enfermedad de Alzheimer o demencia con cuerpos de Lewy. Hay otras posibles explicaciones que su médico discutirá con usted.

¿Cómo podría este resultado afectarme a mí, a mis seres queridos, y otras en mi vida?

A medida que su enfermedad progresa, puede volverse más difícil trabajar y socializar. Esto puede ser difícil, pero usaremos nuestros recursos para ayudarlo a usted y a sus seres queridos a obtener el apoyo que necesita.

Dependiendo de su resultado, su médico podría solicitar citas con más frecuencia que cada año para rastrear al progreso de sus síntomas.

En algunos casos, puede tener acceso a apoyo adicional de trabajadores sociales, la enfermera de la Unidad de Memoria, u otros departamentos del hospital. Esto podría llevar a apoyo como visitas domiciliarias, apoyo financiero, o participación en centros cívicos.

¿Cómo podría esto afectar mi participación en los ensayos clínicos?

Si tiene signos de dos enfermedades, es posible que algunos ensayos clínicos no lo involucren. Esto depende del ensayo clínico, y usted puede discutirlo con su médico.